

S/N Unknown

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Nick A. Youker et al.

Examiner: Unknown

Serial No.: Unknown

Group Art Unit: Unknown

Filed: Herewith

Docket: 279.184US2

Title: INTEGRATED EMI SHIELD UTILIZING A HYBRID EDGE

PRELIMINARY AMENDMENT

BOX PATENT APPLICATION

Commissioner for Patents

Washington, D.C. 20231

Sir:

Please amend the above-identified patent application as follows:

IN THE SPECIFICATION

On page 1, line 3, before the heading, "Technical Field", insert the following paragraph:

-- Cross Reference to Related Application(s)

This application is a division of U.S. Patent Application No. 09/378,407, filed on August 20, 1999, the specification of which is incorporated herein by reference. --

Please substitute the following paragraphs of the Specification with the paragraphs in the appendix entitled Clean Version of Specification Paragraphs. Following are marked-up versions of the amended paragraphs showing specific changes:

Specific amendments to the paragraph beginning on page 6, line 2, are as follows:

FIG. 5 illustrates various views of an embodiment of chip carrier 530. FIG. 5A is a top view of one embodiment of a chip carrier. IC chip carriers 530 may incorporate a cavity 518 that holds integrated circuit chips or other circuits. [FIG. 5B] FIG. 5C illustrates the chip carrier 530 cross-section showing the staircase-shaped steps 550 of cavity 518. Other cavities may not have this structure as is illustrated by a second cavity 519. As shown in FIG. 5A, patterned electrical conductors terminating in bonding pads 522 lie on the surfaces of the ceramic layers and on the steps 550 of cavity 518. The bonding pads 522 on the cavity steps 550 are connected to an

integrated circuit (not shown) through either bonding pads or individual wire leads on the IC to carry signals to and from the chip.

Specific amendments to the paragraph beginning on page 6, line 12, are as follows:

FIG. 5B shows an edge view of an embodiment of chip carrier 530 having portions of an electrically conductive layer, in this case a hybrid horizontal ground plane (HHGP) 524, exposed on the edge of the chip carrier [630] 530. Portions of the HHGP 524 may be exposed as an engineered feature of the unit, or as a consequence of having sawed through portions of the HHGP 524 during the sawing process.

Specific amendments to the paragraph beginning on page 7, line 7, are as follows:

FIG. 7 illustrates a cross section of an embodiment of a chip carrier 730 incorporating an integrated hybrid edge EMI shield 726. The chip carrier 730 incorporates conduction paths 728 to allow electrical communication of the IC 740 to an external device, such as a circuit board (not shown). The IC 740 is in electrical communication with the conduction paths 728 through either wire bonding leads 742 or conduction pads on the IC 740 itself (not shown). The integrated hybrid edge EMI shield 726 is electrically connected with the integrated hybrid horizontal ground plane 724, both of which may act as an EMI shield. This embodiment provides an EMI shield that shields circuitry that is internally mounted in cavities [618 and 619] 718 and 719 from external EMI emissions directed towards the portion of the chip carrier edge incorporating the shield 726 and the chip carrier side incorporating the hybrid horizontal ground plane 724.

IN THE CLAIMS

Please cancel claims 1 - 4 and 10 - 12 without prejudice or disclaimer.

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REMARKS

Claims 1 - 4 and 10 - 12 are canceled. Claims 5 - 9 are now pending.

The specification is amended to add a cross reference to the prior application and to correct various typographic errors. No new matter is added by way of these amendments.

The application filing fee as calculated on the application transmittal sheet reflects the amendments to the claims described above.

The Applicant respectfully requests that the preliminary amendment described herein be entered into the record prior to examination and consideration of the above-identified application.

Respectfully submitted,

NICK A. YOUKER ET AL.

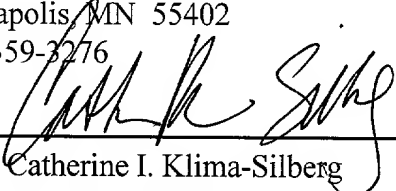
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Date of Deposit: August 10, 2001

This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to the Commissioner for Patents, Box Patent Application, Washington, D.C. 20231.

Clean Version of the Amended Specification Paragraphs

INTEGRATED EMI SHIELD UTILIZING A HYBRID EDGE

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Serial No.: Unknown

Please replace the paragraph beginning on page 6, line 2, with the following:

FIG. 5 illustrates various views of an embodiment of chip carrier 530. FIG. 5A is a top view of one embodiment of a chip carrier. IC chip carriers 530 may incorporate a cavity 518 that holds integrated circuit chips or other circuits. FIG. 5C illustrates the chip carrier 530 cross-section showing the staircase-shaped steps 550 of cavity 518. Other cavities may not have this structure as is illustrated by a second cavity 519. As shown in FIG. 5A, patterned electrical conductors terminating in bonding pads 522 lie on the surfaces of the ceramic layers and on the steps 550 of cavity 518. The bonding pads 522 on the cavity steps 550 are connected to an integrated circuit (not shown) through either bonding pads or individual wire leads on the IC to carry signals to and from the chip.

Please replace the paragraph beginning on page 6, line12, with the following:

FIG. 5B shows an edge view of an embodiment of chip carrier 530 having portions of an electrically conductive layer, in this case a hybrid horizontal ground plane (HHGP) 524, exposed on the edge of the chip carrier 530. Portions of the HHGP 524 may be exposed as an engineered feature of the unit, or as a consequence of having sawed through portions of the HHGP 524 during the sawing process.

Please replace the paragraph beginning on page 7, line 7, with the following:

FIG. 7 illustrates a cross section of an embodiment of a chip carrier 730 incorporating an integrated hybrid edge EMI shield 726. The chip carrier 730 incorporates conduction paths 728 to allow electrical communication of the IC 740 to an external device, such as a circuit board (not shown). The IC 740 is in electrical communication with the conduction paths 728 through either wire bonding leads 742 or conduction pads on the IC 740 itself (not shown). The integrated hybrid edge EMI shield 726 is electrically connected with the integrated hybrid horizontal ground plane 724, both of which may act as an EMI shield. This embodiment provides an EMI shield that shields circuitry that is internally mounted in cavities 718 and 719 from external EMI emissions directed towards the portion of the chip carrier edge incorporating the shield 726 and the chip carrier side incorporating the hybrid horizontal ground plane 724.